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ABSTRACT

The Configurational Theory of Innovation Diffusion, Planned Change, and Development, or the CLER model, can be an effective tool for planning change events such as those involved in developing or improving a vocational education program. The C in the CLER model stands for configurations and configurational relationships among and between the social entities involved in any dissemination event, and the L stands for linkages within and between the various configurations. The E stands for the environment(s) surrounding the configurations constituting the planner (innovator) system and the client (adopter) system. Finally, the R stands for resources available to the planner system to promote the dissemination and to the client system for incorporation of the innovation being disseminated. The concepts of configuration mapping and linkage typing are both a part of the structural theory of this model. The CLER model recognizes four configurations: individuals; groups; institutions or organizations; and cultures, subcultures, and communities. Configuration mapping is the process of establishing the boundaries for the planner system and the adopter system involved in a change episode, and linkage is the mutual stance between innovators and adopters who are able to receive or reject information and/or influence each other. Configuration mapping and linkage typing can and have been used together in several developed and developing nations to facilitate development, delivery, and improvement of vocational programs. (MN)

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PATHWAYS TO EFFECTIVE DISSEMINATION:

CONFIGURATION-MAPPING AND LINKAGE-TYPING AS TOOLS

By

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PATHWAYS TO EFFECTIVE DISSEMINATION:

CONFIGURATION-MAPPING AND LINKAGE-TYPING AS TOOLS

By H.S. Bhola

Both the concepts of configuration-mapping and linkage-typing are part of the conceptual structure of the "Configurational Theory of Innovation Diffusion, Planned Change and Development," also called the CLER model (Bhola, 1966, 1967, 1982, 1984). It is necessary that the essential features of the CLER model be briefly recollected, before presenting a detailed discussion of the processes of configuration-mapping and linkage-typing.

The CLER model

In its barest details, the CLER model can be described in terms of the following propositional statements:

1. The probability of a change event to occur is a function of four variables, C,L,E, and R, one or more of which must be optimized, synergetically, to improve the probability of a change event to occur.

1.1. C, in the CLER model, stands for configurations and configurational relationships among and between the social entities involved in any dissemination event; L stands for linkages within and between the various configurations; E stands for the environment(s) surrounding the configurations constituting the planner (or innovator) system, on the one hand, and those constituting the client (or adopter) system, on the other hand; and R stands for resources available to the planner

system to promote dissemination and to the client system for incorporation of the innovation being disseminated.

1.1.1. "Configuration" implies the negation of linearity in the change process.

2. Change is dialectical. Involved in the dialectic are the planner system {P}, the objective of change or innovation {O}, and adopter system {A} in an ensemble as follows:

{P} x {O} x {A}

2.1. Included in the dialectic is the change agent whether the change agent belongs to {P} permanently or temporarily. The change agent can not stand in isolation outside of the ensemble.

2.2. The three entities in the ensemble emerge ambiguously, in soft focus, in the first ever encounter with a change problem and through a process of mutual definition of each other become more and more concrete.

3. Both {P} and {A} in the above ensemble should be described in C,L,E and R terms.

4. The innovation or the objective of change {O} is also in flux. Adaptation is a natural part of adoption. Change objectives change as {P} and {A} achieve more and more concrete definitions. This suggests that {P} and/or {A} while engaging in the process of responsive adaptation must ensure that the integrity of the innovation or the change objective is protected both in terms of means and ends.

4.1. The objective of change {O} may be a highly structured innovation or an unstructured educational problem that acquires a definition in the very process of planning and implementation of the process of change.

5. In each change episode the dialectic is played in the framework of a grammar of change. This grammar consists of three interrelated processes: ordering and relating; typifiying and hypothesising; and experiencing and correcting.

SEE FIGURE, 1

5.1 Notice that configuration-mapping and linkage-typing are done at all the three levels shown in the figure. At the first step of ordering and ralating it is basically a "primitive" exercise. At the second stage of typifying and hypothesizing, it is still an "arm-chair" exercise. We are using social scientific and other systematic knowledge of such situations and speculating about what might be involved in the change situation of our particular interest. It is at the third stage of existential correction that valid configuration-mapping and linkage-typing takes place. This is where "blueprint planning" changes into "planning for implementation."

6. The innovation or objective of change {O} is unpacked in terms of learning tasks (cognitive, attitudinal, and behavioral); organizational and structural tasks in relation to groups; and other tasks involving communication and action.

7. The ensemble {P} x {O} x {A} -- {P} and {A} described in CLER terms, and {O} unpacked in terms of tasks -- should be used to generate action statements which when strategically and synergetically combined will give us a strategy. These statements should have an orientation to implementation and

should relate to both means and ends. The question should be raised: If that is the set of existing dialectical relationships, what should be done, and how should it be done.

8. Change is a continuous process of experimenting with reality, one strategy leading to another. It is not in the nature of obtaining isomorphisms between intention and achievement, but is better seen as moving towards a goal (which may itself be changing) through "successive approximations."

Configuration-mapping and linkage-typing

Let us now return to the main theme of this paper which is to demonstrate how the techniques of configuration-mapping and linkage-typing could be used to develop concrete pathways to get an innovation disseminated within a particular client system.

What is a configuration.

Elsewhere (Bhola, 1966, 1982), we have defined configurations as social units within which individuals play a variety of formal and informal roles. These roles may be played as individuals, in groups, in institutions, or in cultures. The CLER model recognizes four configuraitons: Individuals (I), Groups (G), Institutions or Organizations (IS), and Cultures, Subcultures or Communities (CL).

What is a configurational relationship?

A configurational relationship comes into being when an innovator configuration (that is, a disseminating agent) acts upon a potential adopter configuration with a view to promoting and

implementing a dissemination strategy or planned change.

Sixteen configurational relationships are thus possible. In a tabular form, the sixteen configurations can be expressed as follows:

	I	G	IS	CL
I	I-I	I-G	I-IS	I-CL
G	G-I	G-G	G-IS	G-CL
IS	IS-I	IS-G	IS-IS	IS-CL
CL	CL-I	CL-G	CL-IS	CL-CL

Stated more concretely, these relationships are:

Individual is the planner, Individual is the adopter

Individual is the planner, Group is the adopter

Individual is the planner, Institution (Organization) is the adopter

Individual is the planner, Culture (Subculture, or Community) is the adopter

Group is the planner, Individual, Group, Institution or Culture is the adopter.

Institution is the planner, Individual, Group, Institution or Culture is the adopter.

And, finally, Culture is the planner, Individual, Group, Institution or Culture is the adopter.

The anatomy of configurations and configurational relationships

Larger (or molar) configurations include smaller (or

molecular) ones. That is, a CL configuration may have within it a number of IS configurations, a multiplicity of G configurations and, of course, numerous I configurations. It is our job to identify salient configurtions within larger configurations that can serve as bridges between configurations as the dissemination process proceeds.

What is configuration mapping?

Configuration mapping is the process of establishing the boundaries for the planner system and the adopter system involved in a change episode; of identifying the configurations, big and small, formal and informal, within and without the boundaries of the configurations directly involved as innovators and adopters in a change episode; and of presenting graphically their relationships in terms of locations in systemic space, hierarchy, structural bonds, and mutual expectations of influence and compliance established among them by custom, tradition or law.

What are linkages?

Linkage (L) is the mutual stance between innovators and adopters being able to receive or reject information and/or influence from each other.

To be in linkage is to have the potential for communication, through channels both personal and impersonal, which will determine whether the possible or desired information and influence could actually be transported and delivered to adopters, through writing, talking, listening, picturing, broadcasting, demonstrating, receiving, viewing, observing,

upholding, reasoning, threatening, or coercing.

Kinds of linakges

Linkages may be between the planner system and adopter system (L/b) or within the planner system and the adopter system (L/w).

Along another dimension, linkages may be formal (operational) or informal (volitional). The terms are self-explanatory.

What is linkage-typing?

Linkage-typing may be defined as the process of presenting, graphically, (a) linkages existing between and within the innovator and adopter systems; (b) linkages which may be dormant and could be energized; (c) linkages that may have to be created anew between and within configurations engaged in an innovator-adopter relationship; and, in some cases, (d) linkages that may have to be severed to isolate resistance to change.

Configuration-mapping and
linkage-typing are done together

While it is possible conceptually to separate the two processes, it is not possible, pragmatically, to separate them. The two are done together.

Some theoretical connections of
configuratio-mapping and linkage-typing

There are some clear theoretical connections between configuration-mapping and linkage-typing, on the one hand, and

system thinking (Checkland, 1981) and communication theory on the other. Venn diagraming (Cieutat, 1969) is another tradition of considerable usefulness in doing configuration-mapping or linkage-typing. Finally, sociometry (Columbia Teachers College, 1947) can help in developing medium-shots and close-ups of the main maps and linkage networks.

Functions of configuration-mapping and linkage-typing

The functions of the configuration-mapping and linkage-typing process are many:

1. It makes complexity less chaotic and more concrete. One can see a picture of the world one is to deal with. The change agent may discover phases in the change process involving chains of change transactions with several intermediaries.
2. It allows the change agent to reflect on to the dissemination problem at hand both in the general and in the particular: in the general, by using social scienctific knowledge about change phenomenon; and in the particular, by modeling the change situation at hand.
3. It provides an opportunity for clarification of values as manipulative or participative assumptions are made in the very process of configuration-mapping or linkage-typing.
4. Actual pathways that could be used to exert power or influence become clear. Good mixes can be developed about formal and informal linkages. Alternatively, the pathways to be avoided are also indicated.
5. It becomes clear where the best entry point is in regard

to a particular adopter system. The disseminator can then use dual linkage strategies: develop one network to enter, another to persuade those who will incorporate the innovation or change.

6. Different generations of configurational maps can be developed to monitor changes over time as well as to project new general or particular learning about the systems involved in the change transaction.

7. A sense of realism in regard to the task ahead emerges. The planner system can then define and develop an appropriate level of response.

The steps in configuration-mapping and linkage-typing

Step, 1

As has been pointed out above, the two processes of configuration-mapping and linkage-typing, while conceptually separate, are handled together in practice.

In our "first encounter" with the change problem, we must necessarily begin with "ordering and relating" to make sense of the change situation. We should put the whole ensemble {P} x {O} x {A} in our mind's eye and we must ask these questions: What seems to constitute the dissemination planner system {P}? What seems to constitute the client (or the adopter) system {A}? Who, are we told, are involved? It is taking census of all the actors involved and making descriptions as concrete as possible.

{P} and {A} can be defined both in terms of membership and structure of relationships between and among the various members of {P} and {A}. For purely analytical purposes, we may first

focus on membership, leaving the questions of structure for later attention.

A table such as the following may be used to list the various members of {P} and {A}:

	CL	IS	G	I
Planner system				
Adopter system				

The first definitions of the {P} and {A} and, therefore, the first listing in the above table will be quite "primitive". The sources of data will also have been no more than conventional knowledge , heresay, perceptions, and biases. This is a "commonsense" dissemination plan but we need to remember that all science must, after all, is and has to be rooted in common sense.

In the steps to follow, we build on this commonsense sense-making of the problem and the situation of change, and , through many iterations, make the definitions of the ensemble more and more concrete and closer and closer to existential reality.

Step, 2

From the first primitive ordering and relating, we must now

go to a more systematic redefinition of the {P} x {O} x {A} ensemble. We will now go through the process of "typifying, and hypothesising" on the basis of what we have learned from social sciences and other systematic experience. It is still an "arm-chair" dissemination plan, but it does put us in touch with the fund of research and theory in the area of planned change. This is an important step. Planning of change and dissemination is part of long and sturdy traditions of theory and research and as disseminators we must be aware of our intellectual ancestory. We must use the social scientific knowledge in planning our dissemination strategies.

This iteration should begin with a second look at the objective of change or innovation {O} in the ensemble. We should remember that {O}, by being in dialectical relationships with both {P} and {A}, will determine the definitions of both {P} and {A}. As we unpack {O}, we obtain a more and more concrete idea of what the definition of {P} and {A} will be.

The unpacking of {O} may be done by using any appropriate taxonomy. The unpacking of {O} may help determine new members for both {P} and {A}. For example, a dissemination task may require printing of materials, which may in turn point to the need of including printers and paper suppliers in {P}. If the dissemination tasks in question are to be performed in Zambia, Southern Africa where there is a "paper famine", we may have to include in {P} an international donor such as the Swedish International Development Agency which does donate paper to developing countries as part of technical assistance.

Both {P} and {A} should be looked at again from yet another perspective. The question should be asked: From the background of social sciences and our own more systematic experience, what should we expect to find? What kinds of communities, institutions, groups, and individuals typically get involved in such change situations? What does social science tell us about existing structures in general and about social structures in that community and culture in particular? Who all are likely to be involved in the change transaction?

This iteration should help us make more concrete enteries in the table of members reproduced above. Another way of asking the question would be: Who will gain or lose power as the current situation changes into a future situation? Everyone who will be touched by a change situation may not even be aware? The disseminator or change agent will have to use his or her values in including or excluding them from the list.

Step, 3

In this step, we should go from "listing" to "diagraming." Using the concepts of systems and venn diagraming, we should make a graphic that structures the various members of {P} and {A} in a network of relationships.

We should do the configuration-mapping for both the {P} and {A} on separate areas of a sheet of paper. The {P} may be on the left side of the paper, and {A} on the right. It is possible that the configurational networks of {P} and {A} overlap.

Start with the more molar configurations, such as CL and IS. If more than one CL's and IS's are involved locate them on

paper in regard to each other to indicate their spacial relationships in a "social space." Organize them vertically and horizontally. Check overlap of boundaries and show physical distances if possible in the graphic.

In so doing, we are trying to solve the "boundary" question: What is part of the system(s) and what is their environment? We are establishing the outside boundaries of both {P} and {A}.

Once we have the larger configurations taken care of, we should then think of groups and individuals in the communities, and groups and individuals inside institutions that are in our list and put them in and on the various configurations already diagramed. What we are doing now is clarifying the internal and external structures of all configurations involved.

The configurational-map that now emerges should be complemented with linkage-typing. We should indicate on the map those linkages that we know or expect exist. Some informal linkages can also be hypothesised to exist. (For instance, we know that all organizations have two overlapping comunication structures: the formal and the informal.) Different notations may be used to distinguish between formal and informal linkages. Arrow head signs may be used to indicate directions.

Step, 3

In this iteration of the definition of the {P} x {O} x {A} ensemble, we immerse ourselves in the reality of the change situation. This is the stage wherein "blueprint planning" changes into "planning for implementation." We enter the living

system of change. We test our configurational maps and our linkage networks against reality. Where reality is not clearly visible, we use formal or informal research strategies to find out more about it.

Our list of members now becomes absolutely concrete. We now will have several entries in the columns for groups (G) and for individuals (I). We will know the names and designations of individuals involved and we will be able to give names to groups that we need to deal with.

While the list of membership is corrected, the diagram of structural relationships will be corrected as well. We may discover that there is need to change locations of configurations involved, in one or more of the three dimensions of horizontality, verticality, and depth; and indeed in terms of the fourth dimension of time, where phases of change may be involved.

In the steps delineated above, we have talked of various iterations. The point is that the process of configuration-mapping and linkage-typing is never complete. At any particular moment, a configuration map will be adequate rather than complete. From one moment to next, they may not stay the same. They will always be tentatively held finalities.

Products of configuration-mapping and linkage-typing

Obviously, the products of the two interrelated processes of configuration-mapping and linkage-typing will be a variety of maps and linkage networks. Maps with networks will not emerge full blown on paper in the very first attempt. Indeed, scores of

maps will be discarded before one is kept as "good enough."

Again, there will be overall maps, and more detailed maps and maps focussing on some particular configuration. In the vocabulary of photography, there will be aerial views, long long-shots, long shots, medium shots, close-ups and close close-ups.

A sharing of experience

Enclosed with this paper are some configurational maps that the author had had the opportunity of preparing as part of his work in the area of change planning over the years. The selection is by no means comprehensive and does not represent all of the various types of maps that are possible to make.

SEE END OF PAPER FOR FIGURES 2-7

Only brief comments can be made on these configurational maps within the scope of this paper:

Figure, 2: The configurational map shows configurations and their network of relationships typically involved in an intercultural project of technical assistance.

Figure, 3: This, again, is a configurational map of an educational development project under Unesco/UNDP assistance. The map brings out the complexities involved in the delivery of technical assistance; and brings out also some obvious errors in the organizational design of such projects.

Figure, 4: This is a second version of Figure, 3 pointing out the hierarchical relationships of the various actors involved. It also points out the absence of interfaces among

many important actors in the change process.

Figure, 5: Another configurtional map of an educational project delivered under bilateral assistance. It was after this map had been drawn up that the fact of the complete separation of the rural and urban systems of education within the same ministry really hit the change consultant. The map also turned up the insight that the ministry was really a ministry and an education directorate rolled into one and that the work of the general directorate had overwhelmed the real purposes of a ministry, that is, to establish national policy.

Figure, 6: This is a close-up of the configurational map in Figure, 5 above. It points out some of the problems likely to be met as the innovator system tries to deliver to a project abroad technical resources that it itself does not have in-house and does not, therefore, fully control.

Figure, 7: The configuration-mapping exercise in the case of a TV project in India which pointed out that there were indeed many layers to the change process and that there were many chains of innovator-adopter relationships going from the center to the communities. The map also showed who was the ultimate adopter and what institutions could play the circuit-breaker role.

Some comments on E and R in the CLER model

Configuration-mapping and linkage-typing are very powerful tools but they must ultimately be used in synergy with the two other variables of CLER -- E and R.

Environment (E) has in a sense been already discussed because, E is the ultimate configuration.

A discussion of Resources (R) must await another time.

Strategizing with C and L

The manipulation of C and L may itself be part of the change strategy. Elsewhere, we have shown what can be done with C and L in promoting dissemination and change. The two tables reproduced below summarize the discussion:

Manipulations	Configurations			
	I	G	IS	CL
Remove/Isolate				
Introduce/Multiply				
Restructure/Merge/ Bridge				
Inform/Educate/ Resocialize				
Inspire/Motivate/ Dynamize				

Similarly, with linkages, the following strategies are possible:

	Linkages			
	Formal		Informal	
Manipulations	L/b	L/w	L/b	L/w
Develop/Extend				
Remove/Block				

Isolate/Connect

Activate/
Intensify

Recalibrate

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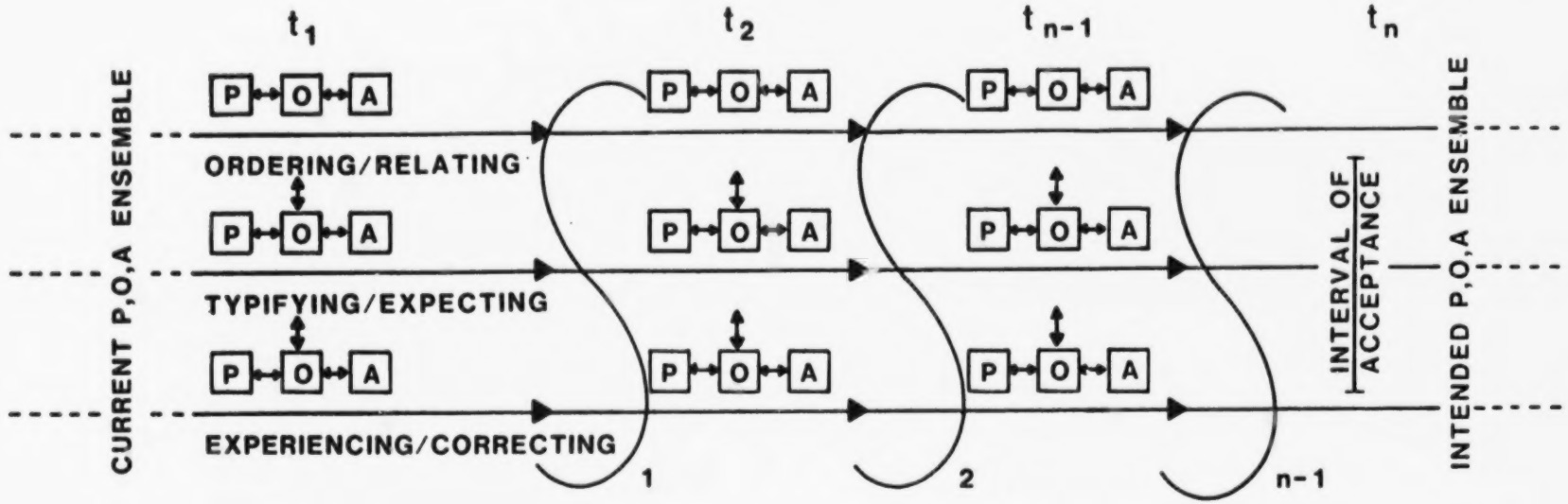


PLANNED CHANGE AS A CONTINUOUS DIALECTICAL PROCESS

P is the planner system
O is the change objective
A is the adopter system
S is the situation-specific strategy

Fig., 1

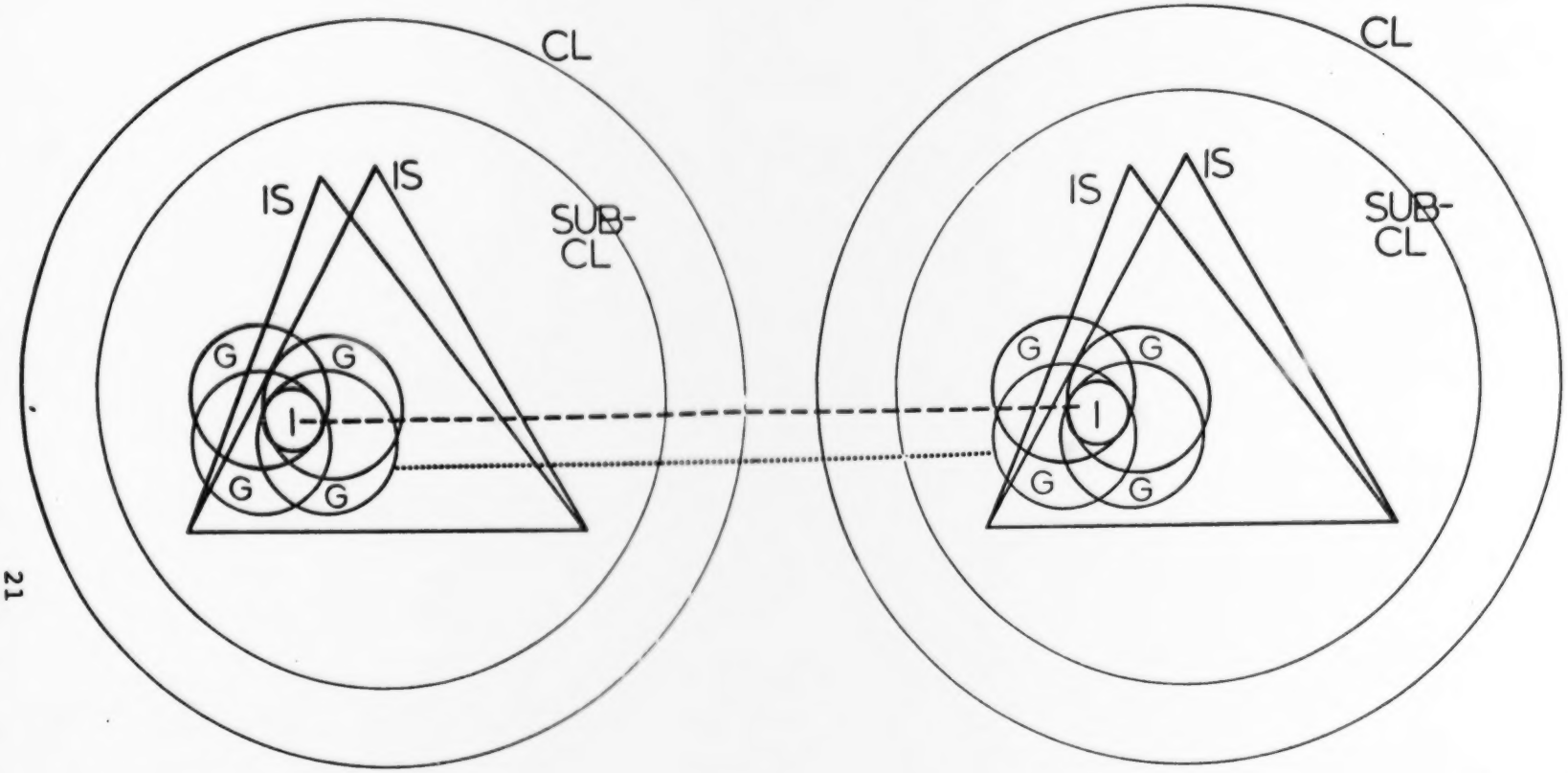


Fig.,2

CONFIGURATIONS THAT TYPICALLY SURROUND AND MAY OFTEN INFLUENCE INDIVIDUAL AND GROUP TRANSACTIONS FOR CHANGE

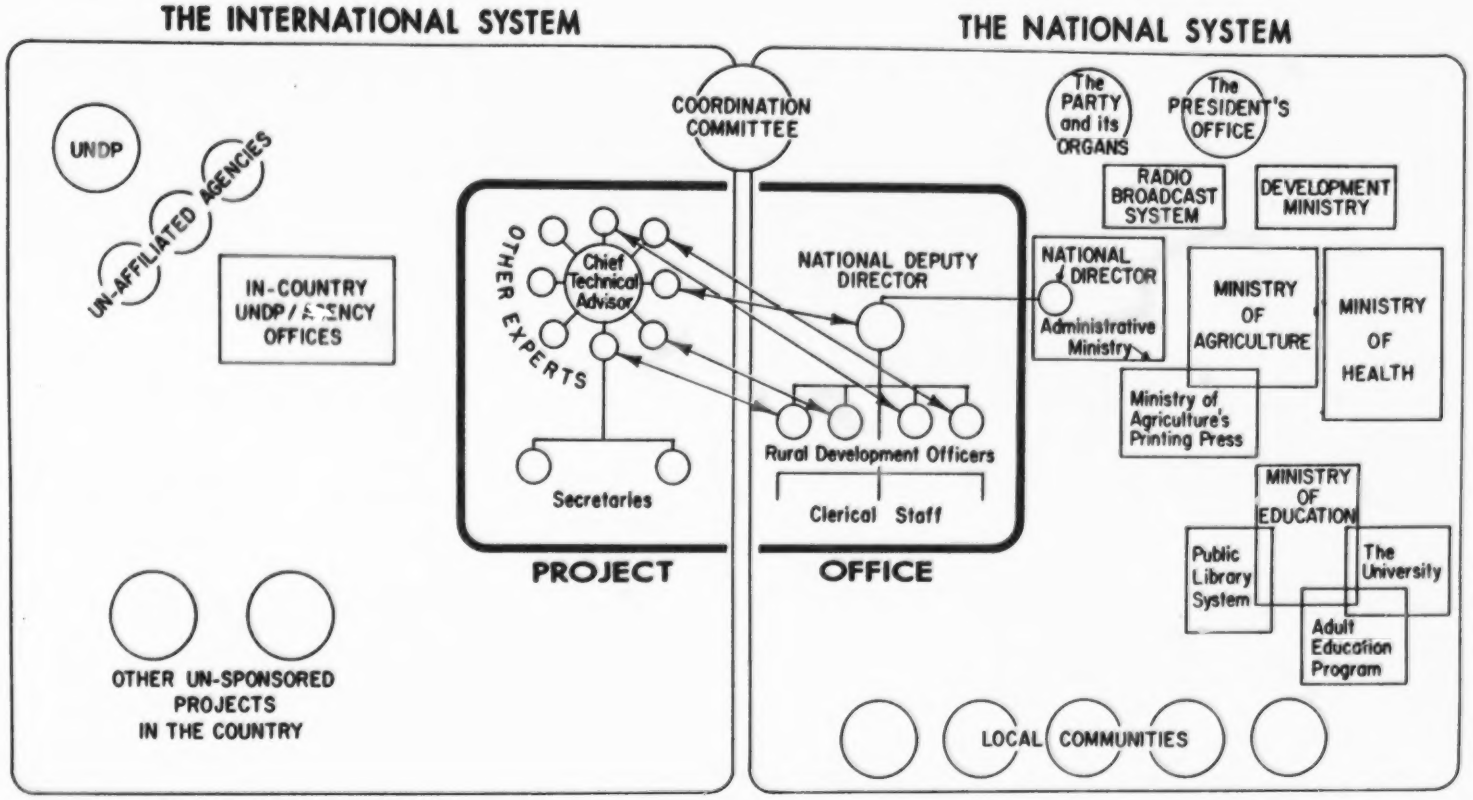


FIGURE 2. The Project Office with related configurations within the National and the International Systems. The five ⟷'s indicate part-counterpart relationships between international experts and national officials. The figure presents the Project Office organization after the whole Agency Team had been transferred to the field area.

Fig.,3

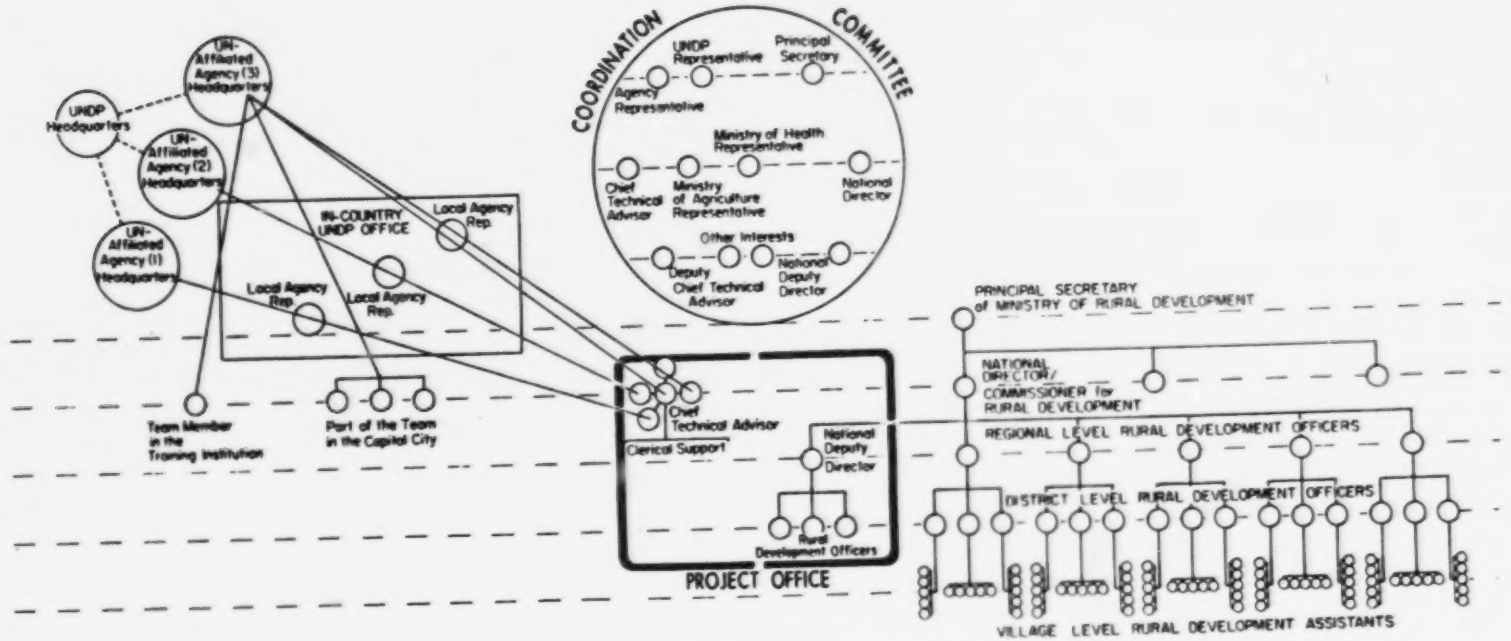
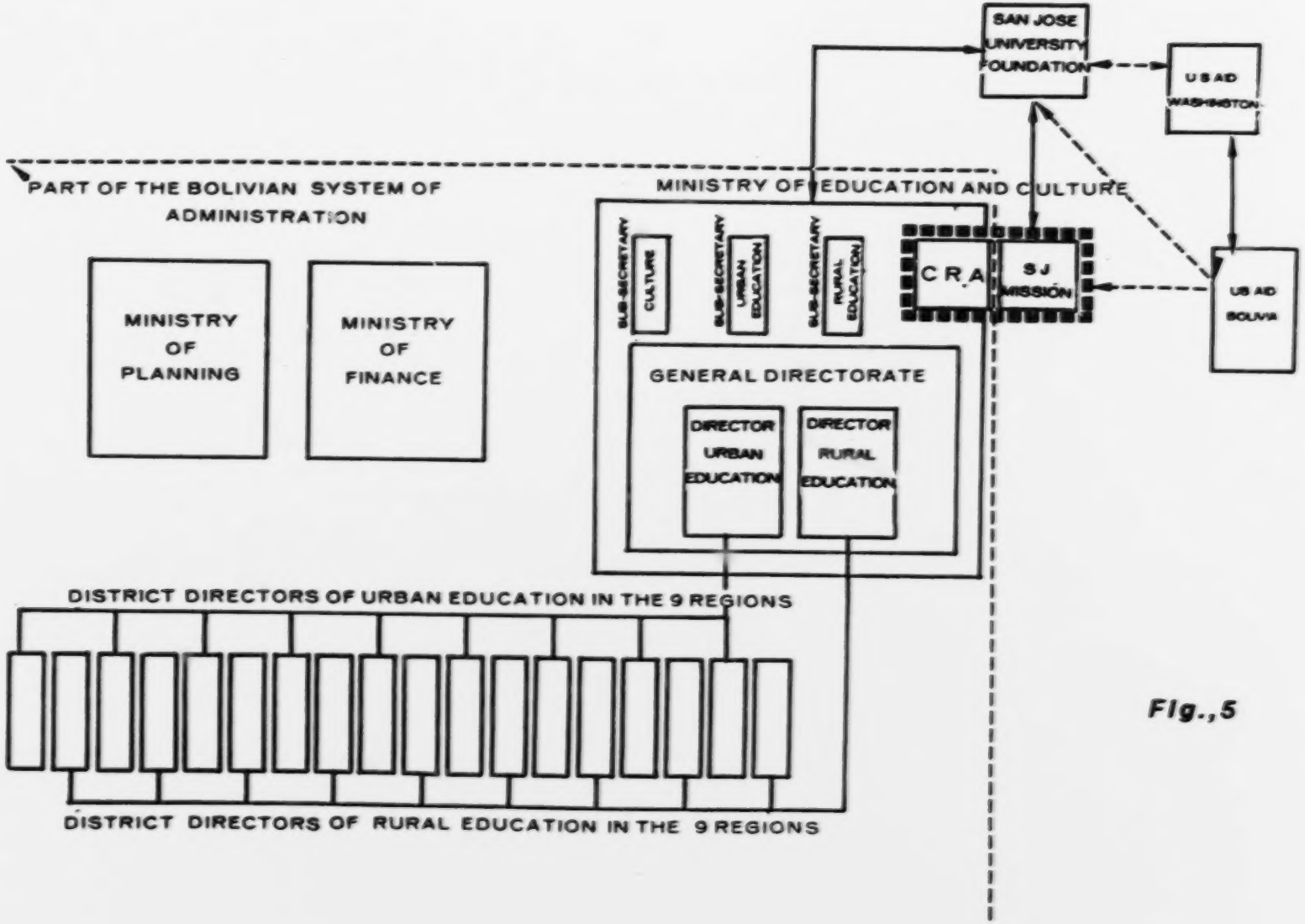

COORDINATION COMMITTEE
UNDP Representative
Principal Secretary
Agency Representative
Ministry of Health Representative
Chief Technical Advisor
Ministry of Agriculture Representative
National Director
Other Interests
Deputy Chief Technical Advisor
National Deputy Director
UNDP Headquarters
UN-Affiliated Agency (3) Headquarters
UN-Affiliated Agency (2) Headquarters
UN-Affiliated Agency (1) Headquarters
IN-COUNTRY UNDP OFFICE
Local Agency Rep.
Local Agency Rep.
Local Agency Rep.
Team Member in the Training Institution
Part of the Team in the Capital City
Chief Technical Advisor
Clerical Support
National Deputy Director
Rural Development Officers
PROJECT OFFICE
PRINCIPAL SECRETARY of MINISTRY OF RURAL DEVELOPMENT
NATIONAL DIRECTOR/ COMMISSIONER for RURAL DEVELOPMENT
REGIONAL LEVEL RURAL DEVELOPMENT OFFICERS
DISTRICT LEVEL RURAL DEVELOPMENT OFFICERS
VILLAGE LEVEL RURAL DEVELOPMENT ASSISTANTS

Fig.,4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SUB-SECRETARY RURAL EDUCATION
C R A
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GENERAL DIRECTORATE
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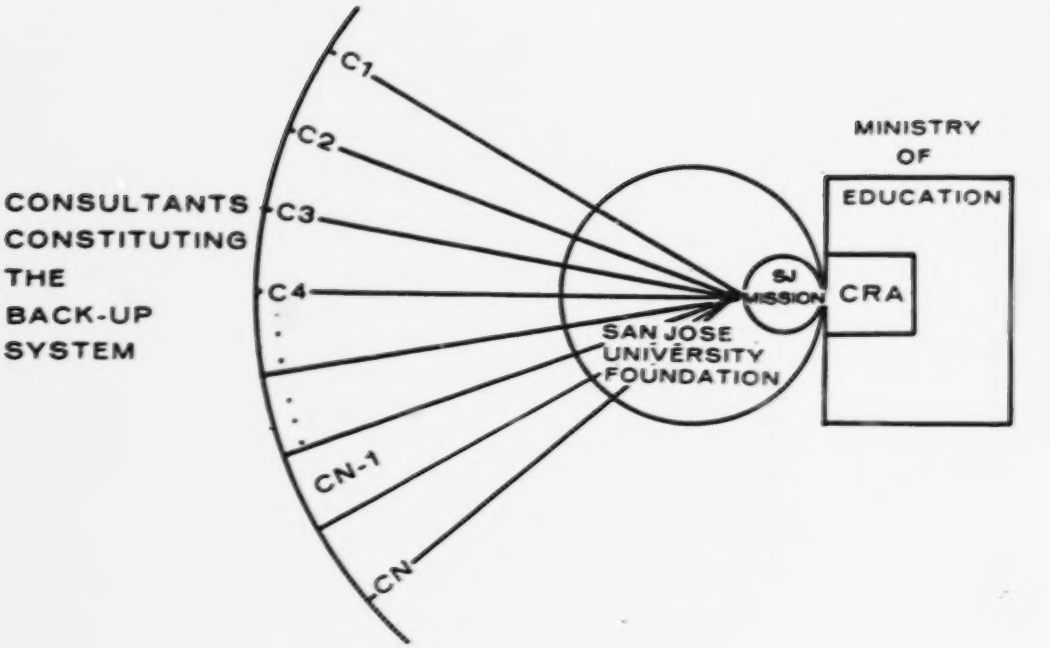
Fig., 5

24


CONSULTANTS CONSTITUTING THE BACK-UP SYSTEM
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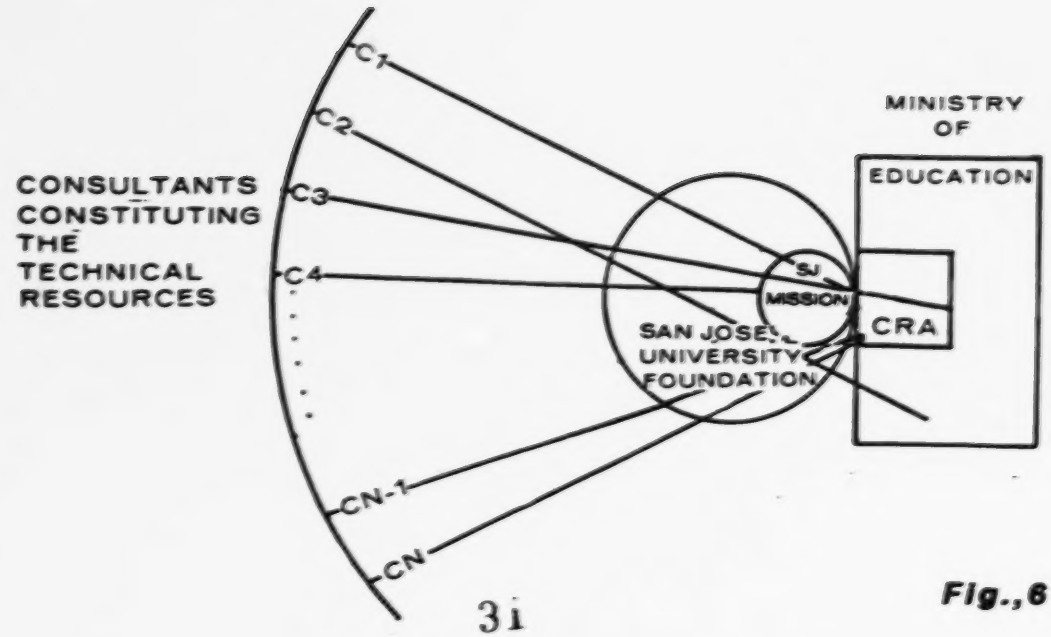
C2
C3
C4
CN-1
CN
SJ MISSION
SAN JOSE UNIVERSITY FOUNDATION
MINISTRY OF EDUCATION
CRA


CONSULTANTS CONSTITUTING THE TECHNICAL RESOURCES
C1
C2
C3
C4
CN-1
CN
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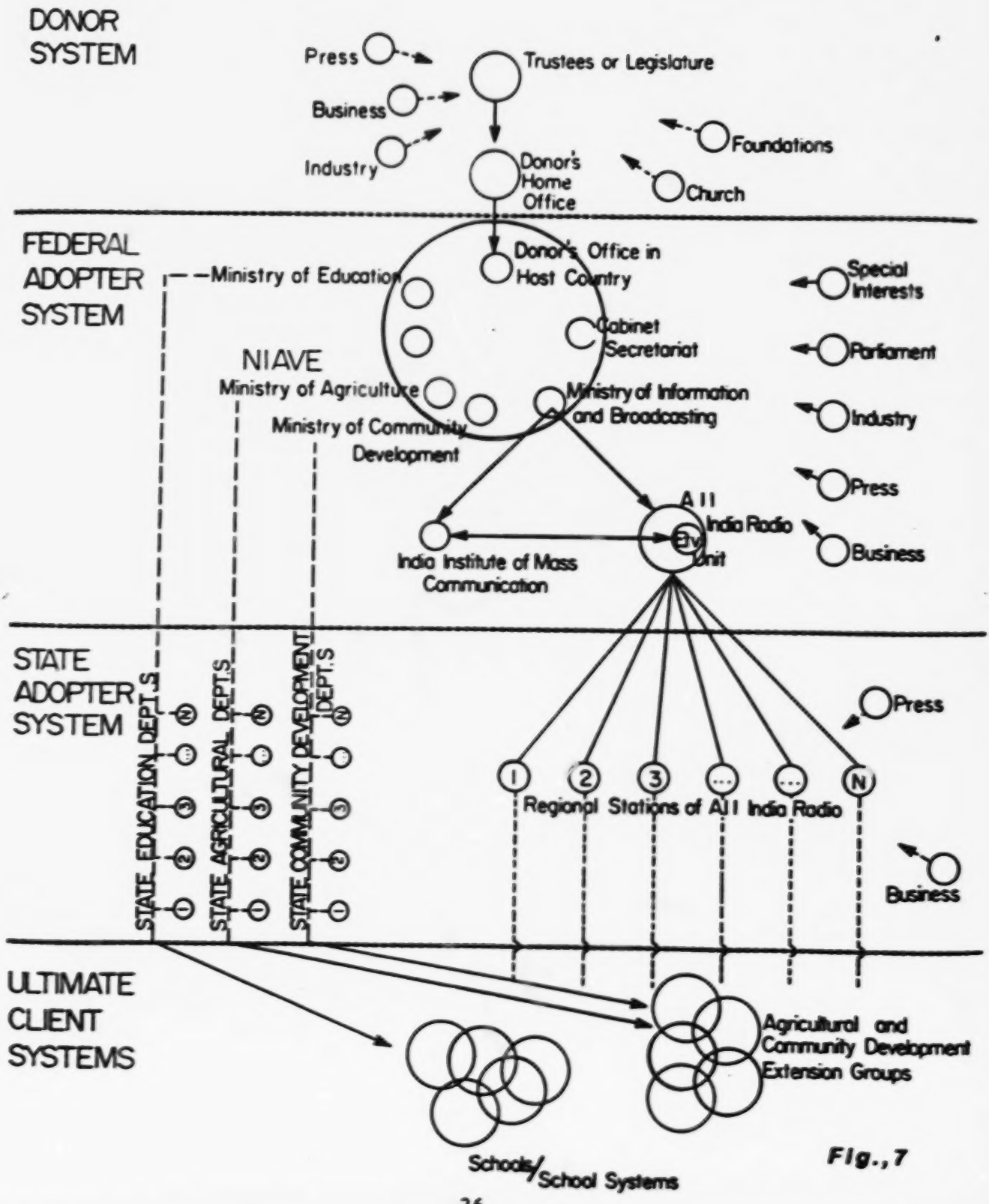
CRA

Fig., 6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Press
Business
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Foundations
Church
FEDERAL ADOPTER SYSTEM
Ministry of Education
NIAVE
Ministry of Agriculture
Ministry of Community Development
Donor's Office in Host Country
Cabinet Secretariat
Ministry of Information and Broadcasting
Special Interests
Parliament
Industry
Press
Business
India Institute of Mass Communication
All India Radio
EM Unit
STATE ADOPTER SYSTEM
STATE EDUCATION DEPT.S
STATE AGRICULTURAL DEPT.S
STATE COMMUNITY DEVELOPMENT DEPT.S
Press
Regional Stations of All India Radio
Business
ULTIMATE CLIENT SYSTEMS
Agricultural and Community Development Extension Groups
Schools/School Systems

Fig., 7